

CLAIMS

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1. A computer program product, tangibly stored on a computer-readable medium, for calculating the validity of a cached frame of a movie in a movie compositing system, comprising instructions operable to cause a programmable processor to:

maintain a global editing timestamp that is updated with each editing operation

5 performed by the system;

establish an interval list for each node in a compositing tree defining a movie, each node having a range of possible times, an interval list for a node defining, for each possible time in the range, a single editing timestamp corresponding to the possible time;

update the interval list for a node when the node is edited by adding an interval

10 corresponding to the period of time affected by the edit and having as its timestamp the timestamp of the edit; and

use the interval list to evaluate the validity of a cached frame for a particular frame time period, the cached frame having been produced by compositing a first node in the compositing tree, the evaluation being performed by (a) comparing (i) an editing timestamp associated with the cached frame with (ii) the timestamps of all intervals in the interval list that overlap the frame time period, and (b) treating the cached frame as invalid if any of the intervals' timestamps is later than the timestamp of the cached frame.

1 2. The product of claim 1, wherein the product further comprising instructions to:

2 use the interval lists of all nodes below the first node in the tree to evaluate the validity of
3 the cached frame.

4 3. The product of claim 1, wherein:

5 update the global timestamp comprises incrementing the global timestamp; and

6 the interval list is stored as a series of pairs (time, timestamp), the series being sorted by
7 time.

1 4. The product of claim 3, wherein:

2 the series of (time, timestamp) pairs is sorted in time ascending order.

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A2

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